



We're moving in! Siebel Center dedication slated for spring

We have been watching the Thomas M. Siebel Center for Computer Science take shape with much anticipation. It is now nearing completion. Schedules for the move have been finalized and nonessential materials will move in November and December and staff and students will move just after January 1.

The dedication ceremonies for Siebel Center has been set for April 30 at 2:00 pm. Other associated events will continue on May 1. This promises to be a big weekend for alumni, students, staff, and friends of the CS department.

"We expect everyone to be delighted when they visit Siebel Center. It is spectacular," said M. Dennis Mickunas, associate head and dedication chair. "We are also very excited to be able to showcase our talented students and

faculty during this time. Labs, such as the Active Spaces, will be open for visitors to tour as well as demonstrations of senior design and EOH projects. We will also have a panel discussion and our arTechnology exhibit which will show art meeting technology at its finest. The event is also a celebration to recognize all the hard work by many dedicated people."

We invite alums and friends to be interviewed for our collection of oral histories. Tell us about your experiences and stories. Many of our archived segments will be shown throughout the dedication.

The most current information is available at: www.cs.uiuc.edu/siebel.

CS celebrates three faculty investitures

Family, friends and the university community gathered to celebrate the investiture of three of its faculty members. Michael T. Heath was invested as the first Fulton Watson Copp Chair in Computer Science. Marc Snir was invested as the first Michael Faiman and Saburo Muroga Professor in Computer Science which established by Douglas B. MacGregor, MS '80. Klara Nahrstedt was invested as the College of Engineering Ralph M. And Catherine V. Fisher Professor.

Fulton Watson Copp Chair

Fulton Watson Copp was a 1925 graduate of the college of Engineering with a degree in electrical engineering. During his career, he was a consultant for Trans Pacific Petroleum, extracting oil from shale in Australia. When Mr. Copp passed away in December 1990, he left a generous gift to the college and the department. As a result, the Copp Chair was established to recognize a faculty member who is an internationally renowned leader in computer science, has an ongoing research program central to the mission of the department, and is a prominent educator with a reputation for outstanding



Fulton Copp's family, Sandy and Wendell Snyder, Elizabeth Copp, celebrated the investiture with Professor Michael Heath

and innovative teaching.

Prof. Michael T. Heath received his PhD from Stanford University in 1978. His main research focus is scientific computing and parallel computing. In addition to his full-time faculty responsibilities in the computer science department, Prof. Heath is the Director of the Computational Science

and Engineering Program and the Director of the Center for Simulation of Advanced Rockets. In scientific computing, his interests are primarily in numerical linear algebra and optimization. Prof. Heath's honors include the Everitt Award for Teaching Excellence and the Campus Award for Excellence in Graduate and Professional Teaching. He has also an Association for Computing Machinery (ACM) Fellow.

Alumni News

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Investitures continued from p. 1



Doug MacGregor, wife?, Marc Snir, Saburo Muroga, Yoko Muroga, Mike Faiman, and Lia Faiman

Faiman Muroga Professorship

Douglas B. MacGregor earned his MS in computer science in 1980. He later earned his PhD in information science from Kyoto University in 1990, where he was one of the first Americans to obtain a doctorate in a technical discipline from a major Japanese university, with both his oral exams and doctoral defense conducted in Japanese.

Doug MacGregor's professional background includes being an executive with Data General Corporation and Dell, forming a multimillion dollar joint venture with Matsushita, and serving on the faculty of the Harvard Business School. He has said that he loves building organizations and businesses. He has often been assigned the job of "turning around" a group essential to a business that was not operating in a way that offers a competitive advantage. MacGregor founded this professorship to honor Michael Faiman and Saburo Muroga in recognition of their service and dedication to students as exemplified by their teaching and guidance as well as for their contributions to the field of computer science.

Prof. Emeritus Michael Faiman received his PhD in physics from the University of Illinois in 1966 after a six-year career with the Digital Computer Laboratory, which included work on the design and construction of ILLIAC II which

spearheaded a new generation of computers. His research included graphical processing, device theory, circuit design, logic design, and networks, and he was co-author of *Pertinent Concepts in Computer Graphics*. He was particularly noted for his teaching of computer architecture in CS 231. In

the 1970s, he instituted the first instructional hardware labs in the department. In the last 14 years of his career, Prof. Faiman was director of graduate programs.

Prof. Emeritus Saburo Muroga received his PhD in electrical engineering from the University of Tokyo in 1958. Subsequently, he worked at the Nippon Telephone and Telegram Corporation (NTT), the university's Digital Computer Laboratory, and the IBM Research Center. He returned to Illinois in 1964 to teach in the newly established CS department and conducted research in threshold logic, design automation, and computer-aided design of VLSI chips. His logic design automation methods have been used extensively in industry, and he is the author of several landmark books.

Prof. Marc Snir earned his PhD in 1979 from the Hebrew University of Jerusalem. He worked for IBM before coming to the department in 2002 as head. His research includes work on parallel interconnection networks and mechanisms for efficient, large-scale shared memory support, and performance visualization tools. At IBM Research, he contributed to the design of the IBM SP2 supercomputer system and several large-scale shared memory systems. He received the IBM Outstanding Innovation Award (both in 1989 and 1994), the IBM Corporate Award, and the IBM Server Teamwork Award. He is an IEEE and ACM Fellow.

From the corner office . . .



Marc Snir

I shall use this column to briefly update you on the current state of the department.

The work on the Siebel Center continues at full steam. The webcam on our web site does not show you much progress anymore, since the exterior is nearly complete. Work focuses now on internal wiring and plumbing. We do not have

cameras installed inside the building, but you are invited to take a virtual tour of the building from our web site, courtesy of Prof. John Hart, and his students Brent Yarger and Tony Kaap, who have developed a 3D virtual reality model of the center. We expect to move into the new building before the end of this year, and plan for a grand opening on April 23rd. Stay tuned for more information on this event.

Newspapers have been full in the last few months with news of the bad financial situation of state universities, and of large tuition increases in some states. Illinois has not been spared: our university has seen an 18% cut in state support in the last two years. The overall tuition increase this year has been modest (5%), but a tuition surcharge of \$1000 was approved for the College of Engineering.

The budget cuts have led to a reduction in many services (library, maintenance, etc.) and a deferral of many investments. Luckily, the department has been spared most of the cuts, and has seen only a modest decrease in its direct budget. However, it is hard to have aggressive expansion plans in the current budgetary situation.

The large tuition increases at many universities have led to proposals for caps in tuition increases; House

Representative Howard McKeon, made a proposal to penalize campuses that increase tuition much faster than the rate of inflation. IMHO, such a proposal is misguided, for several reasons: It is an unfunded federal mandate for the states that are required to fund the increase in the cost of higher education or else loose federal money. It is a double whammy for state universities: universities that see their state budgets cut will be further penalized by federal government. More fundamentally, there are good economic reasons why the cost of higher education increases faster than the rate of inflation.

While technology has decreased the number of hours of labor needed to produce a car, it has not reduced the number of hours of labor needed to “produce” a degree. Indeed, as long as we measure the quality of higher education by the ratio of students to faculty, then we acknowledge that such a reduction cannot occur. Salaries are by far the main expense for higher education. Thus, the cost of higher education is bound to increase at least as fast as salaries for highly qualified personnel increase; most of us expect our salaries to increase faster than inflation.

I do not believe that the cost of higher education can be significantly reduced, without reducing the quality of the education. The real political problem is to decide who should bear this cost: the parents of the students, or the country as a whole.

We are welcoming this year three new faculty members: Eyal Amir, Stephen Bond and Indranil Gupta (see page 8 for their bios). They will strengthen us in key research areas, and bring the number of faculty members to 46. The number of students has not changed significantly. While the number of undergraduate applicants has shrunk by 50% in the last two years, we are still selective in our admittance, and are very happy with the quality of our undergraduate students.

— *Marc Snir*

Cyber Security: A Dialogue on Policy and Technology

Cyber Security is a major concern to government, industry and the broad public. Neither the political nor the technical realms can independently produce a comprehensive solution to this complex problem. To promote this dialog between various consitutencies, the College of Engineering assembled a distinguished panel of experts from government, industry, and academia to explore policy and technology aspects of information assurance.

Panelists: Bob Blakley, IBM Corporation; Brad Boston, Cisco Systems, Inc.; Bill Sayles, Intel Corporation; Steve

B. Lipner, Microsoft Corporation; Shane V. Robison, Hewlett-Packard Company; and John Stammreich, The Boeing Company.

Moderators: John Bourgoin, MIPS Technologies; Adm. Archie Clemins, U.S. Navy (Ret.); and Marc Snir, Department of Computer Science.

Keynote presentation: Richard J. Wilhelm, Booz Allen Hamilton.

The video of the entire program or individual panel discussion questions is available at:

www.securitysummit.uiuc.edu.

Executive Advisory Council: a new era

by Deborah Israel

The department hosted the second meeting of its new Executive Advisory Council on August 28, 2003. The Council, created to inform the profound program changes that the department expects to undertake over the next few years, has been expanded to include twelve members with three positions still vacant. The two new council members, appointed after the inaugural Council meeting in April are: Noreen Iles, VP Retail Systems for Sears Roebuck & Company and John M. Fox, President of Venture Marketing

The Council meeting centered on developing plans for the Grand Opening Celebration of the Thomas M. Siebel Center for Computer Science, scheduled to take place April 30-May 1, 2003. Attendees witnessed the culmination of months of internal collaboration as they discussed and previewed early prototypes of the host of interactive and smart technologies scheduled to be deployed at the Grand Opening. The prototypes included a collection of e-learning technologies, a smart operating system, examples of fine art candidates suitable for exhibition in SC's technology-based art gallery, and a virtually navigable 3-D rendering of the Siebel Center itself. The SC Grand Opening promises to be an event remarkable not only for the technical achievement it represents, but also for the coordination required to enable the labyrinth of collaboration between faculty, students, and alumni that is making it possible.

"Many, many people have had to agree to give priority, time, and cooperation; but, in the end, our efforts appear to be paying off — the response has been great," said department head Marc Snir. "Our planning has been underway for this event since December of last year.

Over the next few months, as the last of the bricks and mortar are put into place at the Siebel Center, we will move into the next phase of building this unique facility, deploying the equipment and technologies that will enable it to grow into the living laboratory Mr. Siebel envisioned when he made his remarkably generous gift. If all goes according to plan, we will instate a facility where students work along side with some of the world's most distinguished researchers, not only to prototype next generation solutions, but to deploy and test their solutions using the building and its occupants as their testbed."

In an academic community of computational researchers, enabled by a feedback loop of skilled computer scientists and unrestricted by the need to demonstrate a business case for advancing technological solutions, a significant acceleration in longer term solutions to society's more intractable problems becomes possible.

EAC Bios

Ira Cohen graduated from UIUC with a BS in computer science (1981). After leaving the university, he went to work for a small consulting company and in November 1982, Cohen and his partner, Ken Kelley, founded Advanced Systems Concepts. The company specializes in database and programmer productivity tools for the IBM iSeries of midrange computers. Ira's duties involve managing daily operations, accounting, and some software development. He and his wife Debra have endowed two scholarships.

Ron Cytron received a MS (1982) and a PhD (1984) in computer science from UIUC. Cytron was a research staff member at IBM's Thomas J. Watson Research Center until 1993. He is currently a CS professor at Washington University in St. Louis. His research interests include optimized middleware for embedded and real-time systems, fast searching of magnetic media, and hardware and runtime support for object-oriented languages.

John Fox is the president and founder of Venture Marketing. He began his career as a field sales engineer with Intel where he received the Intel Distinguished Employee Award. He became an early hire at US Robotics, then a start-up, where he directed sales and marketing. He moved to Productivity Point International. John holds a BS in computer science (1979) from UIUC and an MBA in marketing (1984) from Keller Graduate School of Management.

John Entenmann of St. Croix, U.S. Virgin Islands, is the Chief Investment Officer and Chief Financial Analyst of Global Capital Advisors, LLC, a fund management firm that is the exclusive advisor to a Bermuda exempt investment fund and a licensed SBIC. John graduated from UIUC with a BS in computer science (1984) from UIUC. He has worked for Oracle for nine years, seven as the vice president of Business Intelligence Tools.

Kumar Goswami recently joined HP Labs where he is managing fundamental research on utility computing — the top research and development initiative at HP as well as at computer companies such as IBM and Sun. Prior to joining HP, Kumar was the President and CTO of

Kovair for 4 years which he co-founded with his wife Krishna Subramanian. He is currently on their board. Before Kovair, Goswami spent time at other startups and companies such as Tandem Computers, General Electric and Raytheon. He received his MS (1988) and PhD (1993) in computer science from UIUC.

Noreen Iles is Vice President of Marketing, Merchandising, and Supply Chain Systems for Sears, Roebuck and Co. With 20 years IT experience, Iles is an organizational leader in the use of a wide variety of technologies. She has strong, broad technical background with solid business consulting and teamwork skills. Noreen holds a BS in computer science (????) from the UIUC.

Timothy Krauskopf recently founded a new transportation startup company, Round Lake Freight, which he plans to implement new technology and service ideas for the truckload freight industry. He served as a Vice President at Motorola, managing several core product teams of the Internet Software and Content Group (ISCG). Previously, Krauskopf was head of Information Services at The Field Museum in Chicago, and co-founder, Chief Technical Officer and Vice President of Research and Development for Spyglass, Inc. Krauskopf has a MS (1987) in computer science from the UIUC and a MM (1999) from the Kellogg Graduate School of Management at Northwestern.

Doug MacGregor, see bio on page 2.

Mary McDowell was recently named senior vice president and general manager of enterprise solutions for Nokia. She will head the enterprise group, which comprises mobile devices and security issues. She had been with Compact as a senior vice president of their server business. She continued this role as part of the new HP. McDowell was named one of the Top 20 Women in Technology in Houston in 2000. She serves on the Board of Visitors for the College of Engineering at the University of Illinois. She holds a BS (1983) in computer science from UIUC.

Ed Reingold is chair of the CS department at his alma mater Illinois Institute of Technology where he received PhD (1971) in computer science from Cornell University. Reingold was a faculty member in the Department of Computer Science at UIUC from 1970 until his retirement at the end of 2000. His research interests are in theoretical computer science especially the design and analysis of algorithms and data structures. A Fellow of the Association for Computing Machinery (ACM) since 1995, Reingold has authored or coauthored more than 50 research papers and 9 books. While at Illinois, he has won awards for his undergraduate and graduate teaching.

Thomas M. Siebel is Chairman and Chief Executive Officer of Siebel Systems, Inc. Previously he was CEO of Gain Technology, a multimedia software company, and held a number of senior management positions at Oracle Corporation. A frequent industry spokesman, he received the David Packard Award

from the Business Executives for National Security in 2002 and was named CEO of the Year by Industry Week magazine. In 2000 and 2001, he was recognized by Business Week as one of the top 25 managers in the world. He is the author of three books-Virtual Selling, Cyber Rules, and Taking Care of eBusiness. He serves on the board of advisors of the College of Engineering (UIUC), the Stanford University Graduate School of Business, and the Stanford University Law School. Mr. Siebel attended UIUC, where he received a BA (1975) in history, MBA (1983), and MS (1985) in computer science.

Richard Schell, is currently Executive Vice President Products at NetIQ. A 20-year veteran in the high-tech industry, Schell has held executive positions at Netscape Communications, Central Point Software, Borland and iSharp. At Netscape, Schell was the first to hold the position of Senior Vice President, Product Development, where he built a world-class engineering team starting from a team of 20 to over 600. He also held the position of General Manager for the company's Client Product Division, where he was responsible for a product line that contributed more than half the company's revenue. Schell is on the board of directors for McAfee.com and holds both a MS (1977) and a PhD (1979) in computer science from UIUC.

Thank You!

The following alums and friends of the department have made generous gifts and donations during the period July 14, 2002 and November 12, 2003.

Dean's Club (\$500 or more)

Channing B. Brown III
Thomas P. Burke
Ira R. and Debra Jo Cohen
Ronald L. and Elena S. Danielson
John K. and In-Yung Kim Entenmann
Michael Faiman
Scott H. Fisher
Marc A. Gallo
C. William Gear
Dennis G. Grzesiak
John L. Larson
Douglas B. MacGregor
Marc S. and Susan A. Price Martinez
William E. Miskovetz
Ravi Nair
Keith D. Nater
Daniel A. Reed and Andrea L. Krupa
R. Douglas and Sharon Rohn
Craig W. Rowe
Thomas M. and Stacey Siebel
Cynthia M. Tao and Paolo Aloe
Michael J. Wolfe

Sponsors (\$100 to 499)

Kiran M. Puri and Duane S. Andres
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Robert J. Bury
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Marc and Avigail Snir
James M. and Sara M. Spencer
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Nicole Allegre Wells
William E. Witnik
Kevin J. and Tammy T. Wooley

Contributors (up to \$99)

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Michael Berry
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Donald and Gail Smith
James M. and Barbara E. Stern
John R. and Martha N. Thompson
William F. Walker and Mary M. Wisniewski

Alumni News

2000s

1990s

Ryan Shoff, BS 99 in computer science and finance, and Marci Petersen, JD 00, were married in late August 2002 in Morton, Ill. Ryan is employed by McBride and Schoff.

James W. Oberweis, BS 96, president of Asset Management, runs the firm's securities division, Oberweis Securities Inc., acquired rivals Geneva Securities in Arlington Heights and Madison Securities Inc. in Chicago. In June he entered into a joint venture with Rosenthal Collins Group L.P., a commodities trading specialist, to handle their stock trades.

1980s

James Conrad, BS 84, is an associate professor at the University of North Carolina at Charlotte. He is author of several books used to teach science in grade and high schools using Stiquito, a small, simple, and inexpensive six-legged robot that has been used as a research platform to study computational sensors, subsumption architectures, neural gait controllers, emergent behavior, cooperative behavior, and machine vision.

1970s

Jackson Hu, MS 76 and PhD 78, was named CEO of United Microelectronics Corporation (UMC) in July. He joined the company at the beginning of 2003 as head of UMC's Design Support Division and president of the New Business Development Group that will focus on assessing the foundry requirements of emerging IC design companies. He was president and CEO of SiRF Technology.

Ian Chai, PhD ??, was married last June to Juliane Chew in Malaysia. He

is an assistant professor at Multimedia University in Cyberjaya. Six from UIUC attended to the wedding including best man Glenn Chappell, and groomsmen Maddox Beckman, PhD 03, and Laurence Thong.

Linnea Herbst, BS ??, and Michael Zimmerman were married in fall 2002 in Morton, Ill. The couple is employed by Accenture in Chicago.

Thomas "Ted" Radel, BS ??, and Julie Ray were married last November in Quincy, Ill. He is a senior programmer/analyst for Quincy Compressor.

Andrew R. Olson, BS ?? and MS ?? in cs & math??, and Susan A. Hayward were married in January 2003 in Normal, Ill. He is employed as a video game programmer by Treyarch of Los Angeles, Calif.

Larry Vail, MS 78, is chairman of the Olivet Nazarene University's CS department. He received the 2003 Richard M. Jones Faculty Award for Excellence.

Pankaj Jalote, PhD ??, has been named to eForce Executive Advisory Board. He is currently on the faculty of IIT in Kanpur, India. He was on the faculty at the University of Maryland and was head of the CSE department from 1998-2000.

Other news

Alex Zoghlin, cofounder of online travel company Orbitz Inc. stepped down as chief technology officer. He helped create their powerful search engine. After leaving Illinois he formed Neoglyphics Media Corp., a Web site developer which he sold Renaissance Worldwide in 1998.

In Memoriam

Thomas Slivinski, PhD 67, died in March in Washington DC. After UIUC he served in the Army and conceptualizing the it's first computer system. In 1971 he joined the Environmental Protection Agency and worked on the re-election campaign for President Nixon developing the first automated direct mail campaign. In 1974, he began Management Response, Inc. providing technical consultation to state government welfare organizations and law firms. He later was the Chief Operating office for Mandex Corporation in the 1980s. He was a consultant in distance learning and pioneered a system for disabled students to take classes from home. In 1997 he met his wife Aurelija while setting up Internet link between high schools in Pennsylvania and Lithuania. In 2000 Thomas embarked on a teaching career at Kogod School of Business. He taught classes in information systems and technology. He is survived by his wife and two daughters, Auste and Geidre.

Christ John Xydes, BS ?? and MS 77, died in November 2002 in Tucson while on business. He had just celebrated 25 years with IBM where he was a manager. He was known as a builder starting early on with an erector set and later moving to playground equipment for his two sons Alexander and Nicholas. His wife, Ronda Hruby, noted that he was also excellent at building bridges between his team split between San Jose and Tucson

Faculty News

Sarita Adve recently became a member of the NSF CISE Advisory Committee.

Gul Agha was selected as the 2003 Arthur Schoffstall Lecturer by Rensselaer Polytechnic Institute. He gave a series of two lectures: The Web of All Things: Embedded Computing, Software Agents and the Expanding Cyberspace and The Challenge of Networked Embedded Systems.



M. Caccamo

Marco Caccamo received a NSF CAREER grant for \$400,000 for his research into adaptive resource management in highly dynamic real-time

systems with physical constraints.

Kevin Chang was named a NCSA Fellow. He received a \$25,000 grant for his project, "Exploring and Integrating the Deep Web: Building a Database of Databases".

Eric de Sturler was named director for the SIAM Activity Group on Supercomputing (SIAG/SC).

David Padua and **Josep Torrellas** received a grant from the UIUC-CNRS Collaboration Program to study A New Framework for Program Optimization, in collaboration with a French team lead by Paul Feautrier of Universite de Lyon.



D. Reed

Daniel Reed was appointed to the President's Information Technology Advisory Committee (PITAC) It will help guide the administration's efforts

to accelerate the development and adoption of information for the 21st century. The members, who are leading IT experts from industry and academia, will provide the President with expert, independent advice on maintaining America's preeminence in advanced information technologies.

Jean Ponce and three colleagues, were awarded a patent for a pachinko-like machine that manipulates polygonal parts with an array of pins. Potential applications include automated parts feeding and product assembly.

Grigore Rosu and **Jose Meseguer** received a grant of \$639,545 from NSF for research on scalable formal methods for multidimensional components. The research will lead to important advances in software technology such as: higher software dependability by enforcing multiple assurance criteria and new mathematical models and metrics for multi-dimensional component-based software.

Dan Roth was the program chair for the Association for Computational Linguistics conference held in Sapporo, Japan in 2003.

Marc Snir and **Josep Torrellas** received a NSA grant for \$266,600 for research on teraflop architecture based on superconducting switch or crossbar.

Marc Snir, was elected to the Board of Directors of the Computing Research Association (CRA). The association is comprised of more than 200 North American academic CS departments in addition to laboratories and research centers and affiliated professional societies.

Josep Torrellas became a Member of the Editorial Board of the IEEE Computer Architecture Letters (CAL), and an Associate Editor of the ACM Transactions on Architecture and Code Optimization (TACO).



Y. Zhou

Yuanyuan Zhou received a NSF grant \$350,000 for research on collaborative and autonomic buffer cache management library.

Craig Zilles, received a NSF grant for \$240,000 to research a hardware/software framework for managing on-chip communication

New faculty

The CS department has three new assistant professors this coming year bringing the total to 46; 16 professors, 9 associates and 21 assistants.

Eyal Amir received his PhD from Stanford University in 2001. He did postdoctoral research at the University of California at Berkeley. His research combines theoretical and applied artificial intelligence; agent control



E. Amir

architecture, reasoning algorithms for large knowledge bases, and planning algorithms. He begins in spring 2004.

Stephen Bond received his PhD in mathematics from the University of Kansas in 2000. He completed postdoctoral work at the University of California at San Diego. His research areas are numerical analysis and scientific computing, with an emphasis on biomolecular modeling.



S. Bond

Indranil Gupta received his PhD from Cornell University in 2003. His primary research areas are large-scale distributed systems, fault-tolerant computing, peer-to-peer computing, real-time systems and ad-hoc networks. His research focuses on group communication problems arising in large-scale peer-to-peer systems.



I. Gupta

latency. This new application will further the development of critical path techniques and offer novel approaches to dynamic optimization.

IBM and CS partner in research

IBM was awarded \$53.3 million by DARPA for the second phase of the High Productivity Computer Systems program and will partner with a consortium of 12 leading universities and Los Alamos National Laboratory. The University of Illinois is represented by Department of Computer Science researchers Josep Torrellas, Ralph Johnson, David Padua, and Marc Snir.

The IBM proposal, PERCS (Productive, Easy-to-use, Reliable Computing Systems), follows a vision of a highly-adaptable system that configures hardware and software components to match application demands. A major emphasis of the machine proposal is ease of use, as supported by its architecture, compiler, operating system, and language support.

"The UIUC team was involved in the year-long phase one when they helped conceive the architecture and software systems of the machine. In the three-year phase two, the UIUC team has a major role in the architecture definition, compilation support, innovative middleware, programming environments, and the definition of a productivity evaluation framework and metrics," said Josep Torrellas, the principal investigator of the team.

IBM aims at producing a system that automatically analyzes the workload and dynamically responds to the changes in application demands by configuring its components to match application needs.

At the end of phase two, a new competition will open the path to a 48-month, full-scale engineering development effort. By 2010, a new level of high performance computing technology will be attained with the next level of performance developing in the research labs.

ACM and IEEE Fellows named

The Association for Computing Machinery (ACM) has named Professors **Daniel Reed** and **Jiawei Han** as Fellows for 2003. Members are recognized for their contributions to the field of computer science and information technology.

Prof. Reed's ongoing research interests include tools and techniques for capturing and analyzing the performance of parallel systems via instrumentation and presentation techniques, and collaborative virtual environments for real-time performance analysis.

Prof. Han's research interests include database systems; data mining; data warehousing; stream data mining; Web mining; spatiotemporal data mining; and bio-data mining.

Josep Torrellas has been named an Institute of Electrical and Electronics Engineers (IEEE) Fellow, for his contributions and leadership in the area of shared-memory multiprocessors.

Prof. Torrellas' research interests are in parallel and sequential computer architecture, processor-memory integration, thread-level speculation, low power design, and reliability.

Security courses certified

The Committee of National Security Systems and the National Security Agency (NSA) announced that the university's security courses have met the National Training Standards for Information Systems Security Professionals, NSTISSI No. 4011. Illinois is part of a small group of universities that have received this certification. The university was also designated a Center of Academic Excellence in Information Assurance by NSA.

Investitures continued from p. 2



Klara Nahrstedt and graduate students

Ralph M. and Catherine V. Fisher Professor

Klara Nahrstedt was invested as the Ralph M. and Catherine V. Fisher Professor. This newly created professorship honors outstanding young faculty members in the early stages of their careers. Her research interests include advanced multimedia distributed computing services, multimedia middleware systems, and quality of service. She is coauthor of the widely used multimedia book *Multimedia: Computing, Communications, and Applications*. She has received numerous honors including a NSF CAREER Award in 1996; Xerox Award for Faculty Research in 1998; and the Campus Award for Innovation in Undergraduate Instruction Using Educational Technologies in 2000.

Prof. Nahrstedt received her BA degree in mathematics (1984) and MSc Degree in numerical analysis (1985) from Humboldt University in Berlin. After receiving her PhD in computer science from the University of Pennsylvania (1995), she joined the CS department.

George and Ann Fisher have actively supported the university for many years including a pledge of \$2 million to the College of Engineering to fund several professorships including this one which honors his parents. He earned a BS in civil engineering in 1962. He began at AT&T Bell Laboratories, moved to Motorola, Inc. eventually becoming the chairman and CEO and later assumed leadership of Eastman Kodak Company until 1999.

Department Awards

Students Awards

4.0 Senior **Geoffrey C. Levine**

Bronze Tablet **Michael W. Collins, Michael A.**

Gorcowski, Joseph M. Kelley, Geoffrey C. Levine, Joseph L. Orndorff, Kyle R. Treadway, John L. Wright

CS Outstanding Teaching Assistant **Nazim Elmazi**

C. W. Gear **Hari Govind V. Ramasamy, Geoffrey C. Levine, Matthew M. Marquissee**

Michael J. Hughes **Rajat Banerjee, Jeffrey C. Carlyle, Nathaniel M. Furrer, Quincey A. Koziol, James M. Laird, Shawn T. Lindberg, Chad W. Lowe, Daniel L. Peterson**

David J. Kuck **Svetlana Lazebnik, Alper Ungor**

Duncan H. Lawrie Leadership **Vilas Dhar**

C. L. and Jane W-S. Liu **Shivani Agarwal**

Outstanding Math/CS **Matthew M. Marquissee**

John R. Pasta **Joshua S. Paul, Rachel E. Kai**

W. J. Poppelbaum **Jose Renau**

Ben Jay Rosenthal **Jayant DeSouza**

James N. Snyder **Stephen A. Saville, Bo Cui**



*Vilas Dhar
Lawrie Award*



*Mary Pacold
Dunn Scholarship*



*Jose Renau
Poppelbaum Award*

Scholarships

AFCEA Shrader **Chad M. Cumby**

Altera **Eric J. Zimmerman**

Caterpillar **Frederick Anguiano, Alan Perez-Rathke**

Sara and Louis Cohen **Thomas Barta**

Crowe Chizek **James F. Bresler**

Dunn Systems **Mary E. Pacold, Mani Partheesh**

Franz Hohn and J. P. Nash **Daniel C. Pozdol**

Daniel L. Slotnick **Kelly W. Yeh**

Spyglass **Jean Q. He, Haley M. Miller, Jessica L. Schoen**

General John A. Wickham **Joseph M. Kelley**

William and Ruth Witt **Qihua (Lily) Yang**

Warren Young **Shawn T. Lindberg**



*Debra Jo Cohen,
Lily Yang (Witt Scholarship)
and Ira Cohen (BS '81)*



*Bo Cui
Snyder Award*



*Johnathon Fishcher
Ozzie Fellowship*



*Joseph Kelley
Bronze Tablet and
Muroga Fellowship*

Fellowships

Richard T. Cheng **Ahmed A. Sobeih**

IBM **Jose Renau**

ILLIAC **Dong Xin**

Illinois Distinguished **Xiaoming Li**

Intel **Christopher J. Hughes Milos Prvulovic**

Andrew and Shana Laursen **Daniel W. Cranston,**

Shen Dong

Motorola **Naomi H. Caldwell, Tanya L.A. Crenshaw,**

Elizabeth A. Partridge

Saburo Muroga **Xiaohui Gu, Joseph M. Kelley,**

Patrick W. Lacz, Xue Liu

NASA **Daniel W. Bullok, Bradley Jones**

GK-12 NSF Teaching **Wendy A. Edwards, Smitha Sriram**

NVidia **Nathan Carr**

Ray Ozzie **Johnathon R. Fischer**

Siebel Scholar **Sindhura Bandhakavi, Srikanth Kandula,**

Vivek Sadanand, Joel R. Stanley, Jed L. Taylor

SURGE **Afsaneh H. Shriazi, Erin M. Wolf**

Verizon **Jacob T. Biehl**



*Hughes award winners:
Quincey Koziol (from left),
Daniel Peterson, Chad Lowe,
Shawn Lindberg,
Nathaniel Furrer and
James Laird*

Faculty and Staff

Chancellor's Distinguished Staff Award **Barbara Cicone**

CS Staff Awards **Patrick M. Patterson, Anda L. Ohlsson**

C. W. Gear Junior Faculty Award **Steven M. LaValle**

Dad's Association Certificate of Merit **Barbara E. Cicone**



*Barbara Cicone
Chancellor's &
Dad's Association*



*Steven LaValle
Gear Award*

Revised undergrad curriculum

Comments on the proposed new undergraduate curriculum for engineering students are being requested. The revision will not affect Math/CS or Stats/CS majors.

The first CS curriculum was introduced in 1972 and the last revision was in 1986 with only minor modifications taking place since then. The field has changed dramatically in the meantime and so have the interests of the students.

According to the new proposal, the goals are:

- To ensure that all CS students have a working knowledge of how modern computer systems work. This should include an understanding of the principles of networking and, specifically, Internet protocols (topics that are not currently covered in required courses).

- To ensure that all CS students have good skills in the design and implementation of software systems, and have experience working in teams.

- At the same time, to enhance our students' abilities to think abstractly.

- To permit a high degree of flexibility at upper levels of the curriculum. At first, we are proposing specialization only within CS, but we are designing for possible multidisciplinary programs in the future. Some candidates for future tracks include management information systems, graphic design, and bio-informatics.

The current requirement of 14 CS courses and four application sequence course will be replaced by

continued p. 15



A fast game of FoozBot

**EOH
2003**
Create,
innovate,
fascinate
with CS

This past March students and families from all over the state converged at the university for the annual Engineering Open House. At many times in the day they all seemed to be in DCL; it was packed. Projects challenged kids of all ages to test their skills while building a virtual university or playing a game. CS students explained concepts behind their projects and answered questions based on the level of their eager listeners.

Two CS projects won EOH awards for their hard work. SIGGraph's Magrathea: Computer Generated Natural Phenomena received 3rd place in the original undergraduate research. SIGArch also received a third place for their AutoMiller in the real world category. EOH 2004 will be held March 12-13.

Pakiz EOH Director



Nicole Pakiz

Nicole Pakiz, who received her BS in May, was the chief honcho for EOH 2003.

"The purpose of the two-day event is to raise the public's awareness in

science and engineering and to catch a glimpse of future technology," said Pakiz. "Engineering Open House is a great forum for teaching others about how engineering affects their lives. Students from all engineering disciplines will showcase their talent through innovative projects, design competitions and demonstrations."

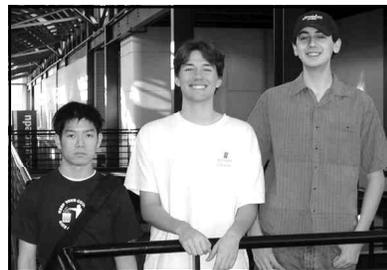
Student News

Senior **Shawn Davis**, NCSA employee, was chosen as campus student employee of the year.

Zack Rosen creates web tool for campaign network of presidential candidate Howard Dean.

Kunal Bagga received the Intel Student Research Contest for undergraduates for his proposal "Real-Time Pre-Processing of Open Domain Question Answering."

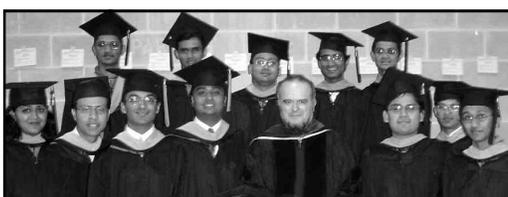
Campus was abuzz with graduating students and their family and friends attending the 132nd commencement ceremony held May 17 at the Assembly Hall. Altogether there were 245 CS graduates: 189 bachelor's degrees, 31 MS and 18 MCS (including 8 from the Internet program), and 7 PhDs.



Team members: Tony Chang (left), Jeff Tamer and Steve Downing

Graduate student **Tony Chang**, and undergraduates **Jeff Tamer** and **Steve Downing**, won the regional competition for the 28th Annual ACM International Collegiate Programming Contest. They will be spending their spring break in Prague competing against 71 other teams from around the globe.

At last year's championships, **Tony Chang** and undergraduates **Sean Monahan** and **Neil Drumm** received an honorable mention.



CS head Marc Snirwith with new alums



What's under the hood?

Chuck Thompson, BS 91 and MCS 01, is a hard man to catch in the department these days. Not only is he the manager of the department's Technology Services Group (TSG), but he is also the chief architect for Siebel Center technology. A few months ago many of the final decisions on Siebel Center technology were still being made, but one thing was certain: everyone wanted only the best and the latest of what current technology has to offer. Now that those decisions have been made and the move into the building draws closer, Chuck was able to give us a preview of what to expect in the new home of the computer science department.

What does networking look like in SC?

The Siebel Center network is a major upgrade in both performance and reliability from that installed at DCL. This upgrade is necessary to accommodate the big increases in distributed multimedia, SAN usage and other advanced research that will be happening in Siebel Center.

We chose Foundry Networks as the vendor. There are nine networking closets, two on each floor except for the lower level, with almost 5000 copper and fiber jacks distributed among them. Each closet will be served by a Foundry FastIron 1500 Ethernet switch. These access layer switches are connected via 4Mb/s links to two core switches. The core switches are also Foundry FastIron 1500's and will be connected to each other at 8Mb/s. The main data center will be served by two Foundry ServerIron 800 switches connected to the core at 8Mb/s. All of the networking equipment will be on UPS.

There is a lot of wire in the building. What are we doing with wireless?

The department's wireless networking has always been ahead of the campus curve and we expect to stay there. We'll be using wireless base stations that have the ability to support multiple wireless networks. This will allow us to use one set of base stations to support the campus wireless network (which uses a VPN client for access), provide a network that uses WPA for security (a newer standard that campus doesn't support yet) and also handle research wireless networks that may not have any security on them. Siebel Center was designed with wireless in mind. There are 25-30 ceiling locations on every floor that have power and data jacks available to accommodate the installation of a wireless node. While this is far more locations than any wireless installation is likely to use, it will help ensure that we can put base stations wherever necessary to provide the

best possible coverage for the entire building.

With so much computing planned, how will the infrastructure change?

With the move to Siebel Center, we will fundamentally change our underlying IT infrastructure. Currently we have two Sun Microsystems E450 machines which provide most of the department IT services including backups, email, web sites, mailing lists, software distribution, file sharing, and more. If either one of these servers goes down, everyone in the department knows it. System upgrades and maintenance are impossible to perform without impacting all department users.

Our new philosophy is to scale out, not up, by replacing the two large servers with many smaller machines, each dedicated to a single service. When one system goes down under this new architecture, only one service is affected instead of the many that would be today. Actually, even one system going down won't be noticeable most of the time. Most services will be provided by multiple machines. If one becomes unavailable, the architecture will make sure that users are simply redirected to a system that is still functional. While this new architecture will provide the department with a more robust and better performing IT infrastructure, it is its flexibility that will allow research to be integrated as safely as possible into a production environment.

HP has generously donated 36 Xeon-based servers that will be the foundation of this new infrastructure. Most will run Red Hat Linux with a few running Windows Server 2003. The Foundry ServerIron 800 switches mentioned earlier will provide network connectivity. Storage will be provided by an HP Enterprise Virtual Array (EVA) 5000 utilizing the first-ever Storage Area Network (SAN) installed within the department.

What is some of the other technology going into Siebel Center?

Siebel Center has an extensive electronic lock and building automation system. The only physical keys are a handful of masters. The only "key" most people will have will be their campus ID. The lights and HVAC system are both computer-controlled. Once fully activated, users will be able to adjust the lights and temperature of their offices from their desktop computer. Or their latest research application.

The average Siebel Center classroom will have more technology in it than most technology-equipped classrooms on campus. This technology will be used both within the classroom and to enhance and expand our

continued on p. 14

Senior projects: real-life experience

The department is in the process of revising its undergraduate curriculum. At the heart of the changes is a set of educational outcomes that students are expected to obtain by graduation. One course that clearly integrates many of these outcomes is our capstone senior projects course.

Teams of students are challenged to analyze, propose solutions to real-life problems, and work directly with clients. Specifically they need to think clearly and precisely about computational problems, apply their knowledge, work productively in a team environment, and possess excellent written and oral communication skills.

Ralph Johnson, coordinator of senior projects, invites area companies and organizations to submit projects. He works with clients to find the right depth for the project so that is neither too easy nor difficult. Many of clients find this to be a very positive experience and participate annually. This year the projects ranged from helping to build the Champaign-Urbana community wireless system to developing an on-screen keyboard for Linux.

Dr. Johnson has a hands-off approach to the class. "At the beginning of the fall semester I talk about problem solving and project management, and I give them presentation pointers. I use their interests to match them to projects. Their number one goal is to make their clients happy. They are on their own after that but I will help them when they get stuck," he said.

The students are required to keep a log of their activities through the year. This not only keeps Johnson

informed of their progress but helps keep them stay on task. A progress report is given at the end of the fall semester. A final presentation is made at the end of the year; their deliveries are assured and sprinkled with stories of their successes and failures. They also draw technical questions from the audience, and solutions to problems are offered by their classmates.

Motorola, which has been involved with the projects since its inception, is an enthusiastic partner. Their first project was a visualization tool for a simulator that they were building for a new RISC processor.

"We have been involved every year since then, with as many as three projects in one year," said Scott Preece, software architect. "We have used the projects to test out new ideas and to build tools to support development teams. They have built software tools that would not have been funded by normal development budgets. For instance one team worked on a tool for managing papers submitted to our annual software symposium, another built a tool to analyze event logs from hardware debugging tools. Some of the tools have gone into regular use; others have been experiments that we learned from. We think it's important to give students an opportunity to learn the demands of industrial development. We have also been able to hire a number of these students after graduation."

This year several of the groups worked on Siebel-related projects. One group completed exploratory work on the firewalls that will be implemented. Since a vendor was not been chosen until the end of the course, they helped develop policies and configuration tools. They provided a solid base to build on and made an impact on the final selection decision.

Another group worked on creating touch screen panels and information system that will be used outside of classrooms, conference rooms, instructional labs, RA offices, and administrative offices. The panels will include information on the scheduled events, notices, advertisements for lectures, a staff directory, etc. They were to design the hardware and software for the display, using off the shelf components; functionality and ease of maintenance were key features.

"There is a direct correlation between the amount of time the client spends with the group and the success of the project. Regular feedback is necessary to help keep them on track," said Chuck Thompson, client and manager of systems services for CS.

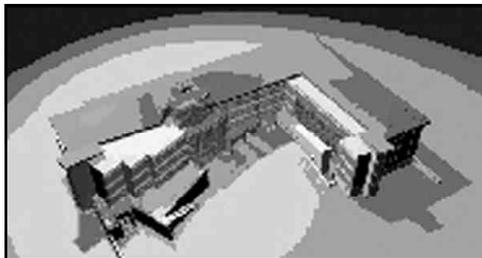
The senior projects course has been in existence since 1995 and has been an elective for students. When the new curriculum is instituted, all students will be required to complete either the senior project or a thesis course.

For more information on the course and projects, see <http://slappy.cs.uiuc.edu/cs292/>.

3D Siebel walkthrough

Tony Kaap and his advisor, Prof. John Hart, have been busy creating a 3D VRML walk through of Siebel Center. The structure is up, the furniture is moving in, and the textures are filling the walls and floors. The walk through will also be graphical department directory.

Click on a door and enter the room. If it is a faculty office, the final version will have icons to bring up information such as their web page and research area.



Take the tour at: graphics.cs.uiuc.edu/sc/

From data to information: a long way to go!

After twenty years of working with databases and data mining, Prof. Jiawei Han still becomes excited when speaking about his research. "We are drowning in data but starving for knowledge. I like to put intelligence into data and information systems," said Prof. Han. "You can induce so much information or knowledge from very scattered data using data mining and it can be applied to so many different fields."

Prof. Han received his PhD from University of Wisconsin in 1985 and was on the faculty of Simon Fraser University for 14 years. He came to the department in 2001 and is a member of the Database and Information Systems (DAIS) research group.

"One area of research that promises great potential is stream data mining; mining huge amounts of data that stream or pass through a system. For instance NASA and the National Weather Service collect terabytes of data that are impossible for a person to grasp and they become expensive to store, said Prof. Han. "Organizations such as these need an automated system that would process the information as it comes in like a watchdog looking for patterns. For example in the area of security; discovering patterns quickly is essential because fast response rates are critical."

He is also collaborating with NCSA on a project, Mining Alarming Incidents in Data Streams (MAIDS), that investigates algorithms and scalable mining methods to turn volumes of data into useful information. The system could be used in data-rich areas such as network intrusion detection, telecommunication data flow and financial data trend predictions.

Another area of his research focuses on mining sequential patterns and structured patterns. "With support from NSF we are

deepening our understanding of these patterns and are developing a set of efficient, highly scalable, application-oriented sequential/structured pattern mining methods. Both methods have broad applications, including analysis of customer purchase sequences, analysis of Web page structures, understanding disease treatments, and the discovery of DNA sequences and molecule structures," said Prof. Han.

His work has led to writing the book on algorithms, *Data Mining: Concepts and Techniques*, which was an outgrowth of a data mining tutorial he gave at ACM SIGMOD conference in 1996. Unlike other data mining textbooks, his book concentrates on concrete algorithmic methods that systematically teach and train students. He is at work on the second edition.

He was given the IBM Faculty Award for the past two years that includes funding to support his research on cross-relational mining. In this case data are mined across many databases that might be developed by different companies and government agencies. Again algorithms are used to find patterns from the data sources. There are benefits for both sides with this partnership; he has teamed with IBM researchers to co-author papers and his students were chosen for summer internships.

"I work with a very talented team of graduate students and visiting scholars. We have many publications on data mining. This year at ACM SIGKDD conference we got in four out of 34 accepted full research papers. We are a very active group," said Prof. Han.

In 2002 he received the Outstanding Contribution Award at the IEEE International Conference on Data Mining. He also serves as one of the Directors on the Executive Committee for ACM SIGKDD and is

the ACM SIGKDD Curriculum Committee chair. The committee is developing a curriculum on data mining or undergraduate and graduate courses at institutions worldwide.

Within CS, he is guiding the development of its new curriculum in this area. The current offering of backbone courses in database systems will be increased to include two additional lines, *data mining* and *text information systems*, at both the undergraduate and graduate levels. These new courses will start their offering in this coming academic year. Students will be able to specialize in one of these three lines. Future lines might include bioinformatics.

He has been teaming with other members of the CS faculty. He and Prof. Yuanyuan Zhou are jointly teaching a seminar course that combines their expertise of data mining and networking and focuses on data mining for security, performance, and software robustness.

Inside Siebel

The DAIS group is constructing a web-based Integrated Dynamic Information Service (IDIS) system for the department. It will perform web crawling within the CS domain and the research areas that are not covered under the current search function. It will rank the importance and freshness of the pages, perform automated classification and clustering and build a multi-dimensional database that will help users in hierarchical and keyword-based searches. Students will also help develop IDIS as part of project in their database and information systems courses.

Prof. Han is also working with Prof. David Padua, and David Kuck, who is a Professor Emeritus and Intel Fellow. They are researching methods to make data mining more scalable by using parallel processors. He along with professors Josep Torrellas and Yuanyuan Zhou and a professor at Purdue University are looking at architecture-side data storage systems, how to use data mining to find software bugs and build robust software systems. This project will be funded as one of new medium-size NSF ITR projects.

Other members of the Database and Information Systems (DAIS) group include:

Kevin Chang, who is interested in data management issues which include Internet information access and query processing, digital libraries and Web databases;

AnHai Doan whose research focuses on databases, artificial intelligence, and data integration object identification and sharing;

Marianne Winslett whose research interests are in databases and related areas, especially security and parallel I/O for high-performance scientific computation.

ChengXiang Zhai whose interests center on information retrieval, processing and management of large amounts of text, algorithms that exploit language technologies and use of language models, and how to organize, search the vast amounts of text information.

Did you know?

Next fall most university courses will be renumbered. Most of the changes will be at the 300 and 400 levels. Undergraduate courses will range from 100-400 and graduate courses will be from 400-500.

Curriculum *continued from p. 11*

18 CS courses. Dropping some of the non-CS courses will allow students nine hours of electives.

Some of the proposed changes are:
- ECE 205 and 206, Math 285, and the application sequence be dropped.

- CS 173 be increased to 3 hours
- new courses in systems programming and programming studio

- senior project, senior thesis or software engineering sequence be required

- CS track will include concentrations in areas such as: systems, graphics, and databases.

The proposed curriculum may be found on the CS web site.

Comments may be directed to: Sam Kamin, Director of Undergraduate Programs, kamin@cs.uiuc.edu.

Cluster Open House

Clusters of single processor or small-scale shared memory nodes are fast replacing traditional supercomputers for many applications. They provide a cost-effective platform to perform computations that formerly could only be run on a supercomputer. Research groups now can have the power of a supercomputer at a fraction of its cost.

Much of the research in areas such as architecture, compilers, and parallel computing requires large clusters to provide enough bandwidth to run the programs. Fourteen faculty members and their graduate students from the CS and the Coordinated Science Laboratory (CSL) joined together to develop such a cluster and to celebrate the opening of their new lab.

The cluster consists of 75 computers with two processors each. Advanced Micro Devices (AMD) generously donated the 150 Athlon MP 2000+ processors that power this cluster. NSF awarded a \$120,000 grant.

Siebel tech *continued from p. 12*

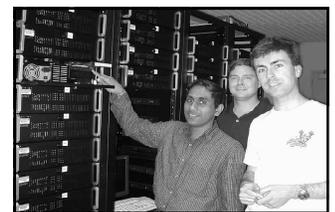
distance learning program.

As people walk into Siebel Center from the west entrance one of the first things they'll see is the large video wall that will be located on the east end of the atrium. Students have already asked about being able to hook the latest game consoles up to it.

What excites you about moving into Siebel?

TSG is a service organization dedicated to providing the highest level of computing resources to our faculty, staff and students. I believe the new infrastructure we're installing at Siebel Center will help to create an environment in which research and academics can thrive. To paraphrase a slogan of BASF's, "We don't do the research, teaching, or learning. We allow faculty, staff and students to research better, teach better and learn better." Without all of the technology going into it, Siebel Center would be just another (very nice) new building. What excites me is the opportunity to be part of making Siebel Center a living lab instead of just a building.

"These research projects address critical problems spanning a large number of areas in computer science and engineering. The cluster will not only allow us to achieve the full potential of our current research programs, but will enable new research that would not be possible without such a shared facility," said Prof. Sarita Adve the proposal's principal investigator.



Graduate students Ruchira Sasanka, Christopher Hughes, and Milos Prvulovic with new cluster.

Live Web cam and timelapse construction video at: www.cs.uiuc.edu



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